

IN THE CLAIMS

The listing of claims below will replace all prior version of claims in the application;

1. (currently amended) A device for detecting neutrons, comprising:

a body of hexagonal boron nitride disposed between electrodes;
power supply means for applying a voltage to the electrodes,
wherein the voltage is applied in a direction substantially parallel to a crystallographic axis of the hexagonal boron nitride; and
means for detecting and measuring the ~~signal~~ current pulse emitted from said hexagonal boron nitride.
2. (original) The device of claim 1, wherein the hexagonal boron nitride is pyrolytic hexagonal boron nitride.
3. (original) The device of claim 1, wherein the hexagonal boron nitride is enriched with the isotope ^{10}B .
4. (original) The device of claim 3, wherein the enrichment is 100%.
5. (currently amended) A method for detecting neutrons, comprising:

providing a body of hexagonal boron nitride disposed between electrodes, wherein the electrodes are disposed perpendicular to a crystallographic axis of the hexagonal boron nitride;
applying an electric field parallel to a crystallographic axis of the hexagonal boron nitride.
exposing the hexagonal boron nitride to a flux of neutrons; and
measuring the ~~signal~~ current pulse produced.
6. (original) The method of claim 5, wherein the hexagonal boron nitride is pyrolytic hexagonal boron nitride.

7. (original) The device of claim 1, wherein said hexagonal boron nitride comprises a structure selected from the group consisting of single crystal, polycrystalline, turbostratic, and disordered.
8. (new claim) The device of claim 1, wherein the crystallographic axis is the c-axis.
9. (new claim) The method of claim 5, wherein the crystallographic axis is the c-axis.
10. (new claim) The device of claim 1, wherein a signal is generated when the rate of energy deposition is greater than about 12 eV/Angstrom.